



**Sentry
Buildings**

Assembly Book

Revised February 6, 2015



the Richmond

16'x20' Building
w/ Full Loft

Manufactured by Reynolds Building Systems, Inc.

205 Arlington Drive

Greenville, PA 16125

724-646-3775

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IMPORTANT INFORMATION ABOUT YOUR SHED KIT

Thank you for purchasing our Richmond shed kit. The material supplied is listed on the back page. **If you have received duplicate books, use the one with the latest revision date.**

The material may be delivered in two shipments. Our shipment will contain the roof gables and truss components. The nails are packed in the first layer of gable panels. It is not necessary to unpack the rest of the material until you have built the lower walls and 2nd floor loft.

The balance will be delivered by a local lumber supplier. When you receive their material, check the material delivered against the material list on the back page. If you feel you are missing any material listed, call the store as soon as possible.

The foundation size should measure 16'-0" wide by 20'-0" deep. **Do Not** make the foundation larger. The siding should project beyond the foundation for water to expel properly from the walls. Check building code in your area for foundation requirements.

IMPORTANT: Unpack the material from our pallet, then carefully disassemble the pallet. The 2x4s will be used for bracing. The OSB panels for roof sheathing. The pallet is secured together with square head screws. The bit for the screws is packed in the hardware bag.

The LP siding has a 50 year warranty and is already primed. Apply two coats of latex acrylic paint for the finish coat. Paint the bottom edge of the siding, this is important. Maintain 6" to 8" of clearance from the bottom edge of the siding and the ground. Don't allow garden mulch to build up and keep shrubs a minimum of 1' away from the building.

Stacking the boards, according to size, will make them easier to find when needed. **Do Not** discard any material, *no matter how small*, until your building is complete.

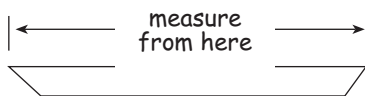
Our component kit does not include the shingles, giving you a choice of color and quality. The breakdown of the material you need to supply is listed on the back page.

If you have any questions about assembling the kit, call 800-245-1577. If you are calling after normal business hours, call 724-866-HELP (4357) or email to help@barnkits.com.

Before you begin construction, be sure to study this assembly manual. Also, obtain a building permit and check all pertinent building code regulations.

Thank you for your purchase.

Bill & Linda Rinella, owners



When measurements are given for board length, it is from the longest side of the board.

Tool List

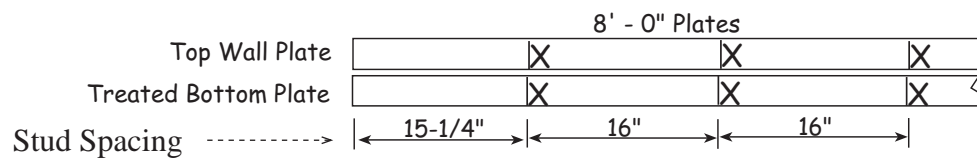
- | | |
|--|--|
| <input type="checkbox"/> Hammer & Phillips Screwdriver | <input type="checkbox"/> Power Screwdriver/Drill |
| <input type="checkbox"/> Framing Square & Level | <input type="checkbox"/> Measuring Tape |
| <input type="checkbox"/> Circular Saw | <input type="checkbox"/> 2-12' Step Ladders |

Always wear safety glasses when cutting or nailing!

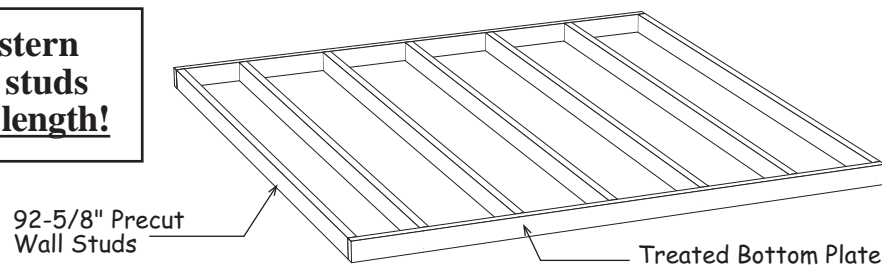
Step 1 Assemble Rear Wall

1. **Note:** When building the lower walls, use treated 2x4s for the bottom wall plate.

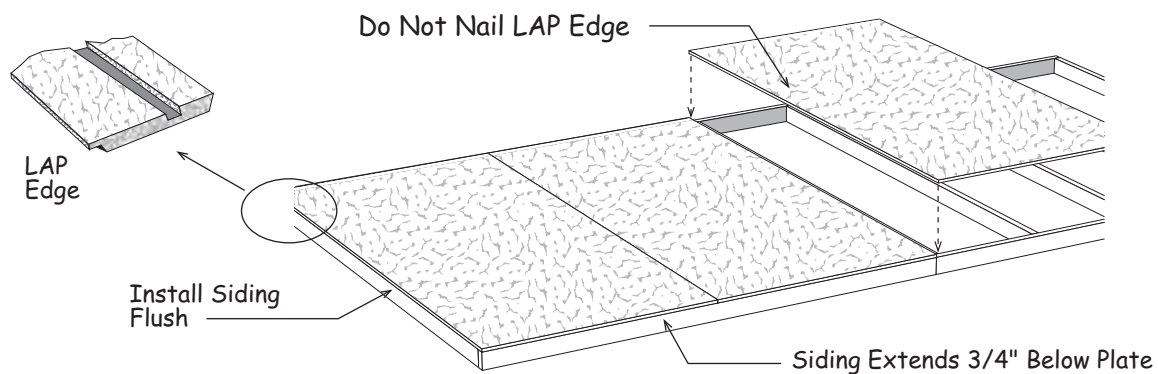
Cut (2) two 2x4-8' boards (one will be treated) to a length of 8' - 0". Position the boards together and indicate with 'X' marks, where the wall studs will be located.



NOTE: In western states all wall studs are 92-1/4" in length!



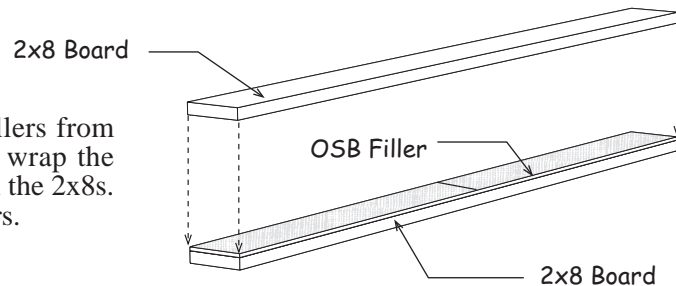
2. Install 92-5/8" wall studs between the top and bottom plates. Nail the treated bottom plate to the wall studs with 16d galv. deck nails. Use 16d sinkers to nail the top plate.
3. Repeat to build another 8' long wall frame.
4. Butt the frames together. Do Not nail frames together so they can be separated later.
5. Square the frames. Measure the wall diagonally (corner to corner). Then measure the opposite corner. The measurements will be the same, if the wall is square.
6. Install the first siding panel flush with the end of the frame. Install (2) two more siding panels. Do Not nail the 'LAP' edge to the first wall so you can separate the frames and install the walls separately. Use 8d galv. nails, spaced 9" apart.



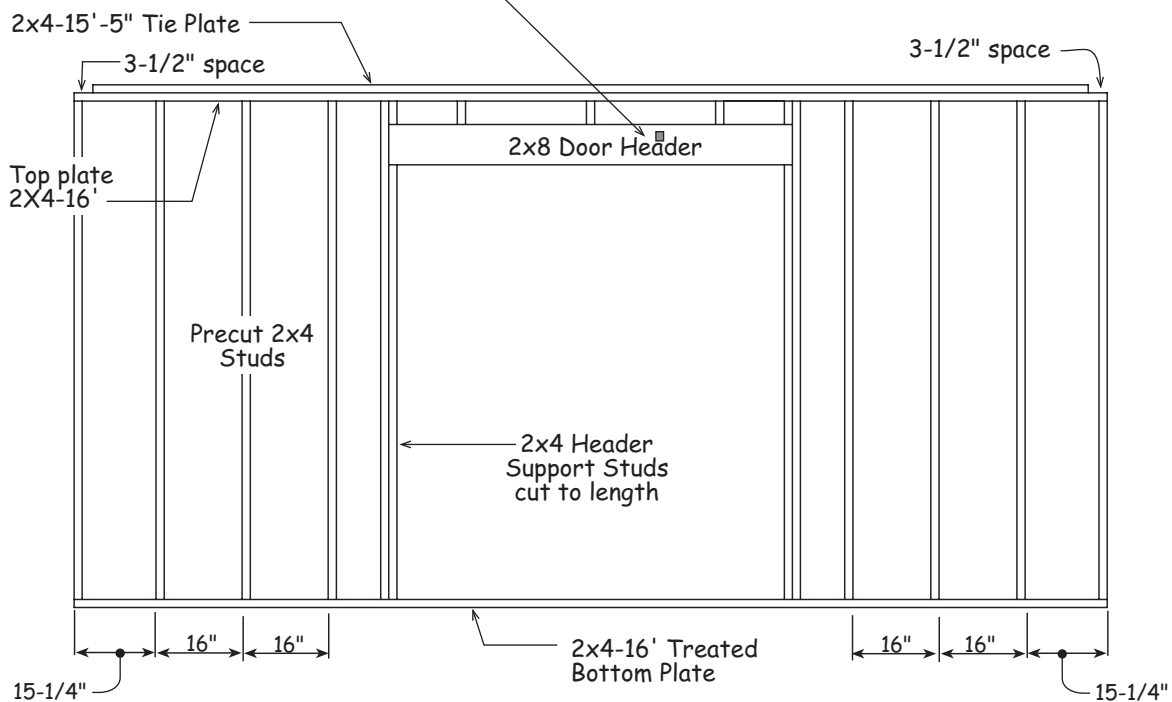
Step 2 Assemble Front Door Wall

1. Locate (2) two 2x8 boards that are 10' long. Cut the 2x8 boards 3" longer than the rough opening required..

2. Cut (2) two 7-1/2" x 48" long fillers from OSB sheathing that was used to wrap the pallet. Install these fillers between the 2x8s. Assemble header using 16d sinkers.

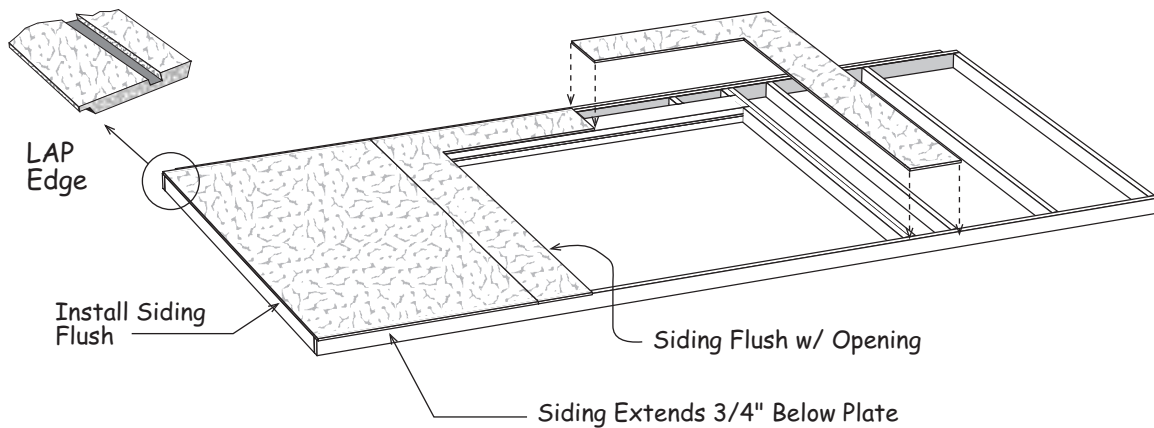


3. Cut a treated 2x4-16' to 16'-0" for the bottom plate.
4. From regular 2x4-16' boards, cut (1) one to 16'-0" and (1) one to 15'-5".
5. Assemble the front wall panel using the wall plates cut above and pre-cut wall studs .
6. Install the 2x8 header. Note: The bottom 2x4 will be removed from the door opening after the walls are set. Subtract 1-12" from the rough opening for the door you are installing. Cut pre-cut studs and install under the door header.
7. Install 2x4 blocks to hold the spacing between the door header and the 2x4 top plate.



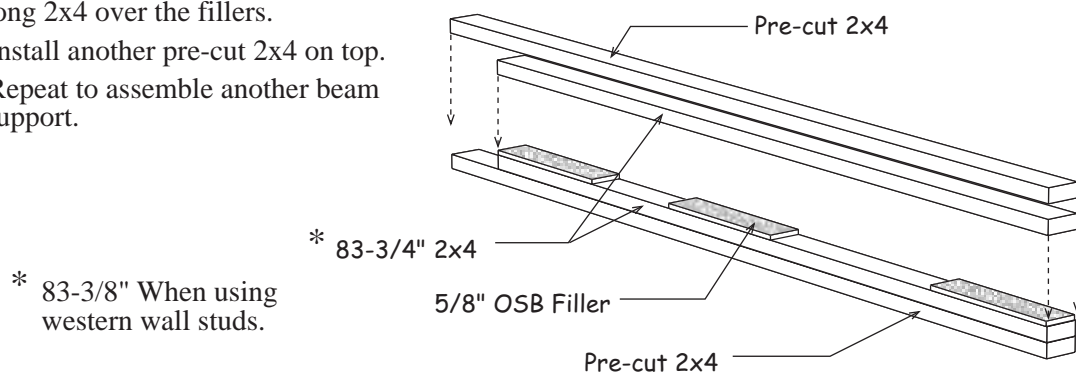
Step 2 Assemble Front Door Wall Continued

8. Square Wall Frame. Install a 4x8 panel with the 'LAP' edge flush with the left wall stud.
9. Install more 4x8 siding panels.
10. Cut siding from door opening.



Step 3 Build Beam Supports

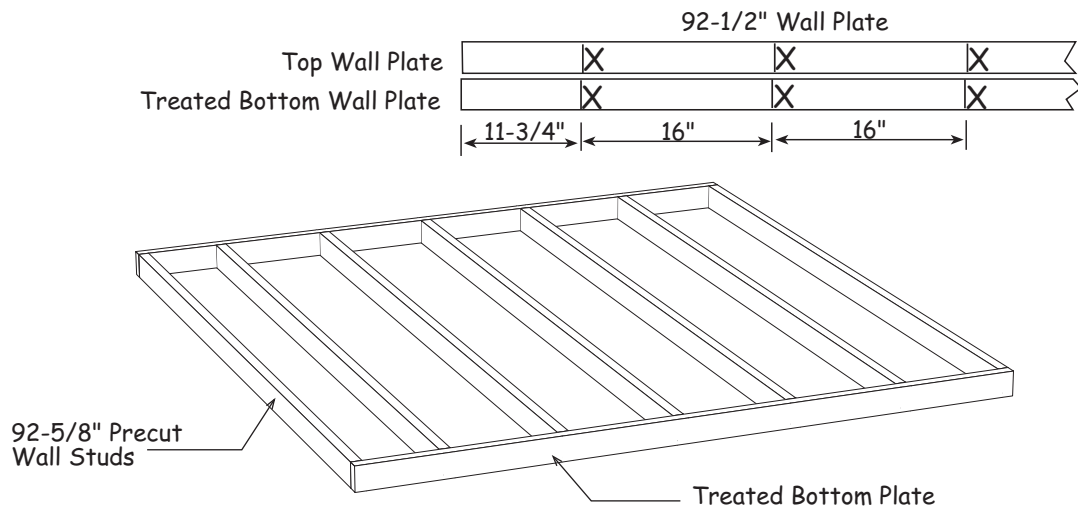
1. Cut (2) two pre-cut wall studs to a length of 83-3/4" (83-3/8" if using western wall studs). Nail one of the 2x4s to a pre-cut wall stud. Use 10d sinkers.
2. Nail (3) three 3-1/4" x 16" long OSB fillers to the 83-3/4" long 2x4 as shown. Use 6d common nails.
3. Install the other 83-3/4" (82-3/8") long 2x4 over the fillers.
4. Install another pre-cut 2x4 on top.
5. Repeat to assemble another beam support.



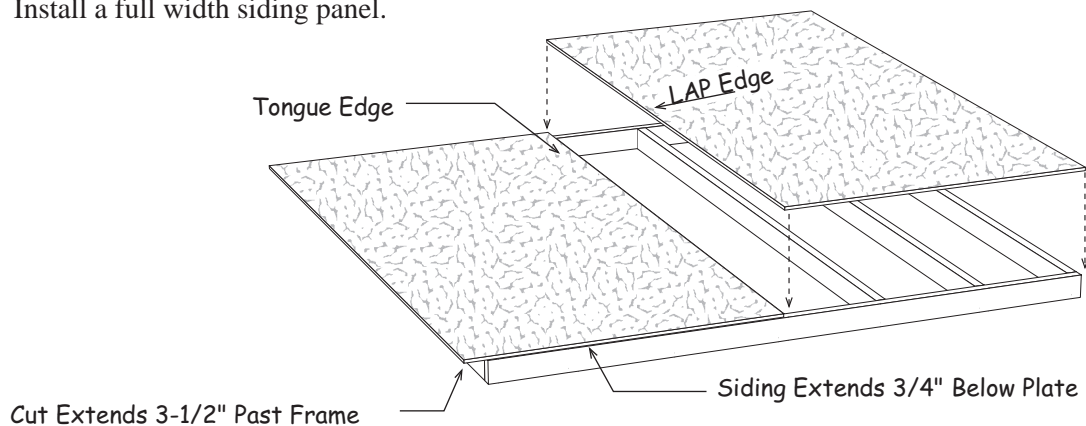
Step 4 Build 8' Sidewalls

1. **Note:** When building the lower walls, use treated wood for the bottom wall plate.

Cut (2) two 2x4-8' boards (one will be treated) to a length of $92\frac{1}{2}$ ". Position the boards together and indicate with 'X' marks, where the wall studs will be located.

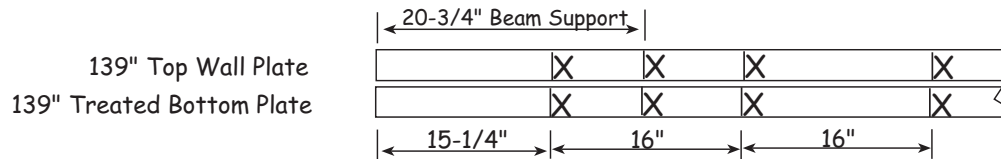


2. Install 92-5/8" wall studs between the top and bottom plates. Nail the treated bottom plate to the wall studs with 16d galv. deck nails. Use 16d sinkers to nail the top plate.
3. Cut a siding panel to a width of $46\frac{1}{2}$ " removing the 'LAP' edge. Install this siding panel with the 'Cut' edge extending $3\frac{1}{2}$ " past the wall frame.
4. Install a full width siding panel.

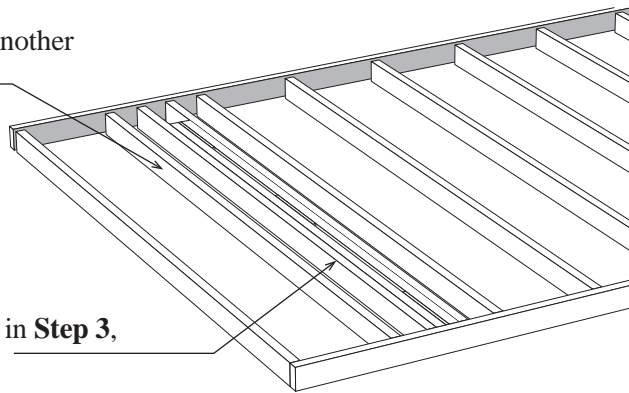


Step 5 Assemble Left Sidewalls

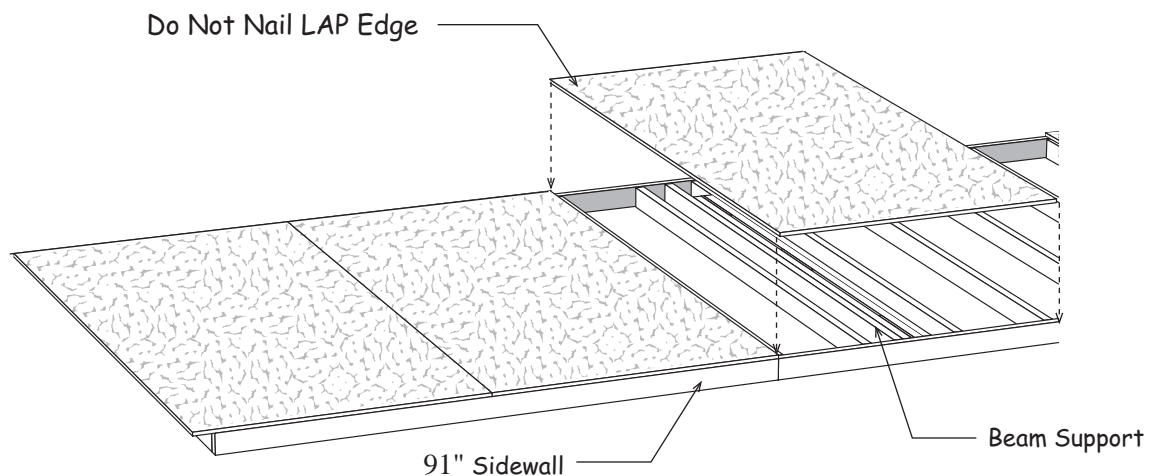
1. Cut (2) two 2x4-12' to a length of 140-1/2". Position the boards together and indicate with 'X' marks, where the wall studs and the beam support will be located.



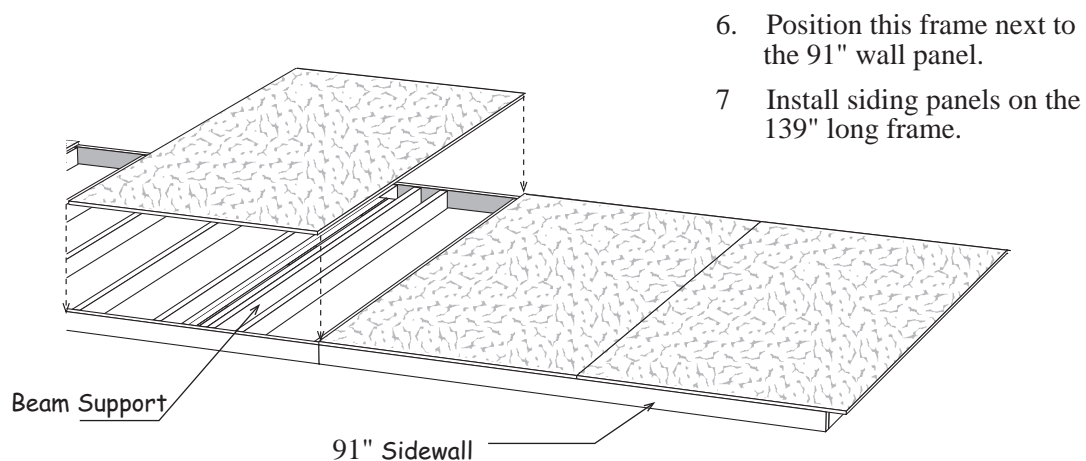
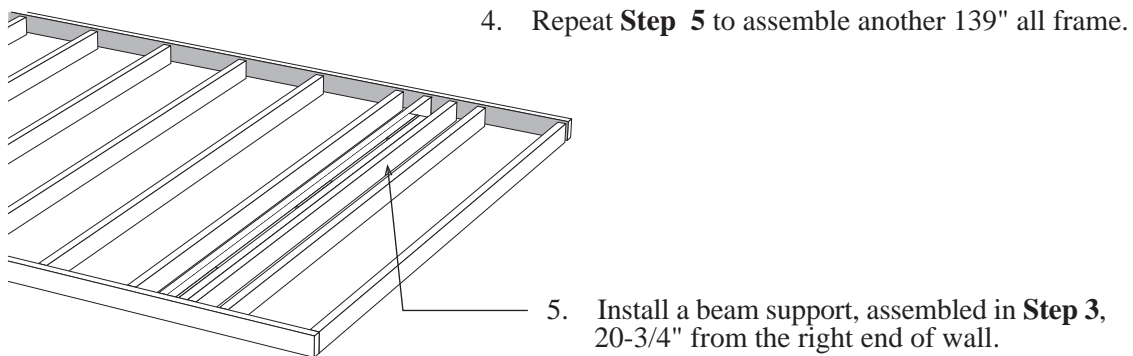
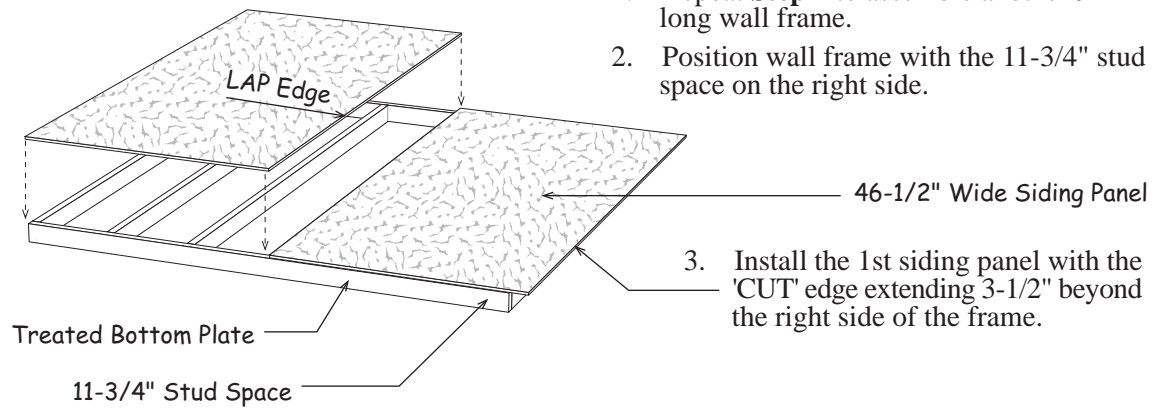
2. Using the above plates, assemble another wall panel using precut wall studs.



3. Install a beam support, assembled in **Step 3**, 20-3/4" from the left end of wall.
4. Position this frame next to the 91" wall panel. Do Not nail frames together. Square the wall frame. Install a siding panel. Do Not nail the 'LAP' edge to the 91" wall so you can separate the frames and install the walls separately.
5. Install (2) two more siding panels. Cut the last panel to extend 3-1/2" beyond wall frame.

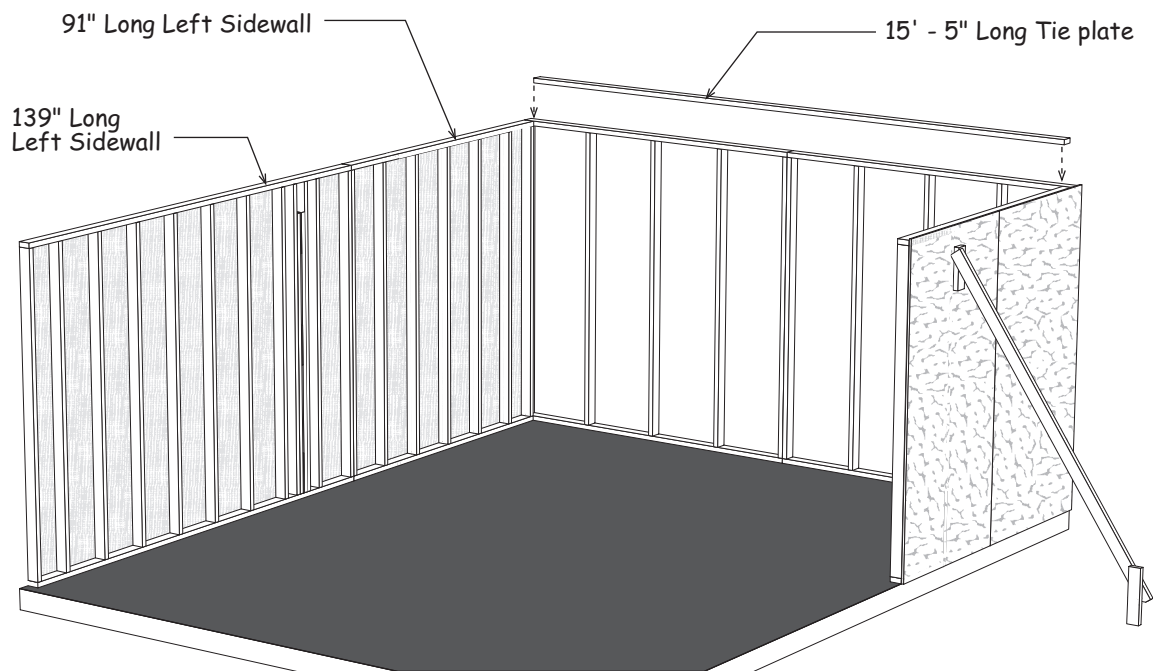


Step 6 Assemble Right Sidewalls



Step 7 Set Wall Panels

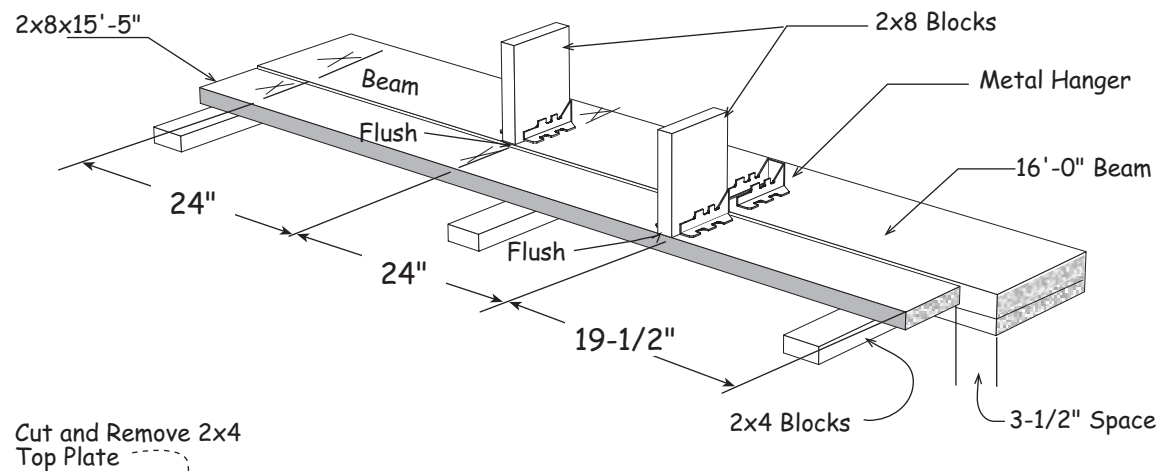
1. Set the 91" long left sidewall panel and the 96" long back wall panel. Secure the corner together with 16d sinkers.
2. Set the other back wall panel and the 91" long right sidewall panel.
3. Brace sidewalls using 90" long 2x4s (pallet material).
4. Cut a 2x4-16' to a length of 15'-5" and install across the top of the back wall. The 2x4 will set in 3-1/2" from each end of the back wall.



5. Set the 139" long left sidewall panel.
6. Install the remaining wall panels

Step 8 Install 2nd Floor Loft Beam

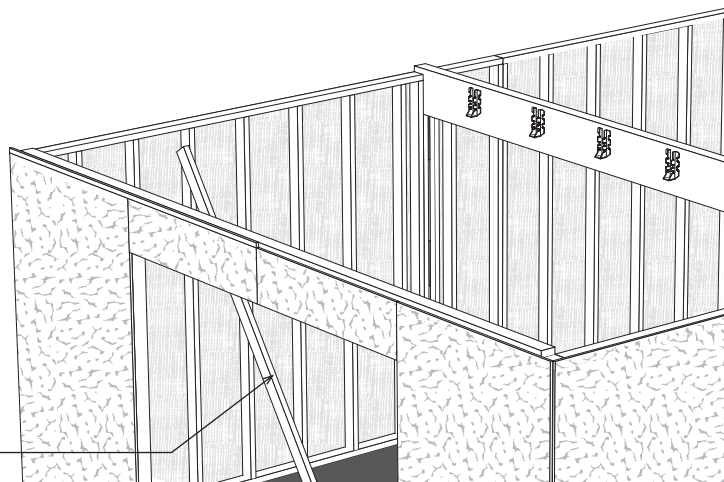
1. Cut (2) two 1-3/4" x 11-7/8" LVL micro-lam beams to a length of 16'-0". Glue and nail them together with 16d sinkers.
2. Cut (2) two 2x8-16' boards to 15' - 5". Position a 2x8 against the 16' beam as shown below.
3. Position 2x8 blocks, *leftover from door header*, at the top of the 2x8 and beam. **Important:** The hangers should line up across from each other. Install metal joist hangers on both 2x8's and beam. Install hanger with hanger nails.



4. Cut the 2x4 top plate. Cut through the siding to remove the 2x4. The siding does not have to be removed. The soffit, when installed later, will cover the cut marks in the siding.

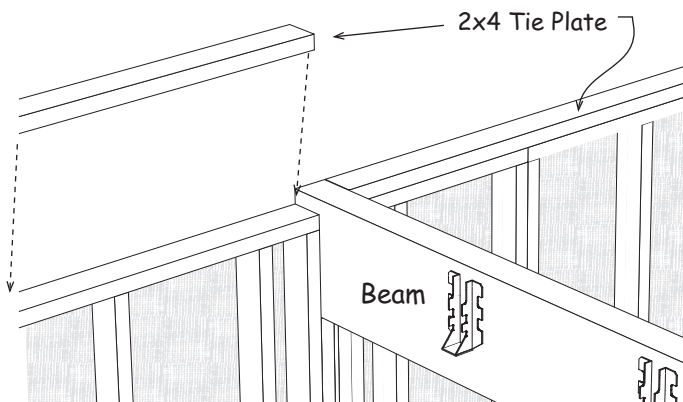
5. Place the beam into the beam pocket. Secure in place with 16d sinkers.

2x4 Wall Brace



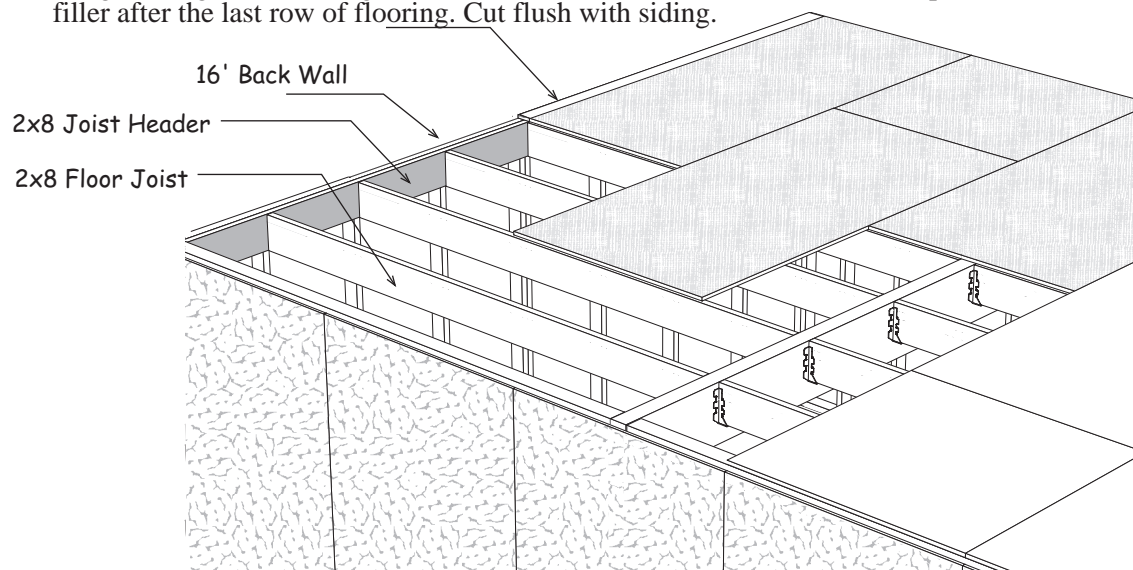
Step 9 Install Loft Floor

1. Install 10' long 2x4 tie plates on sidewalls. Use 16d sinkers to secure tie plates.



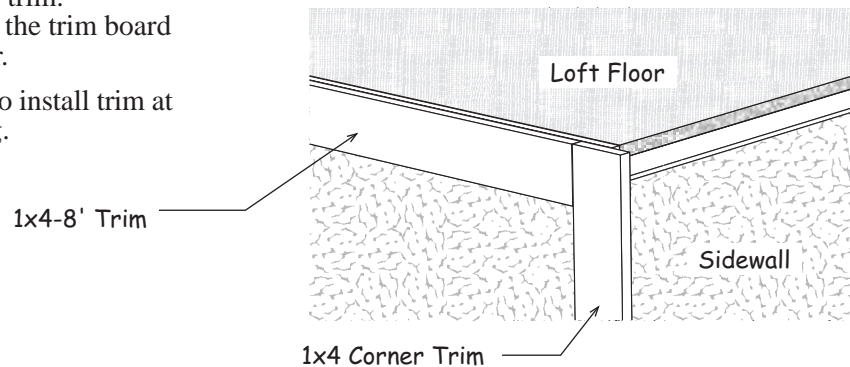
If you are installing the optional stair kit, install joist header and floor joist at the front of the building. Refer to the stair instructions to install the floor joist at the rear of the building.

2. Install the 2x8 boards, from **Step 8**, on the front and back walls, flush with the top of the tie plates. Secure the 2x8s to the wall plates and wall studs with 16d nails. **Important:** Nail 2x8 to each wall stud using (4) four 16d sinker nails in each wall stud.
3. Cut and install 2x8 floor joists between the 2x8 joist header and beam. You will need to install joist hangers on the opposite side of the beam.
4. Install 3/4" flooring. Start at the front wall with the 'Tongue' edge flush with the siding. Secure flooring with 8d spiral deck nail.
5. Tongue and groove flooring does not cover 48" width. Install a 1x4-8' white pine board filler after the last row of flooring. Cut flush with siding.



Step 10 Install Front & Back Wall Trim

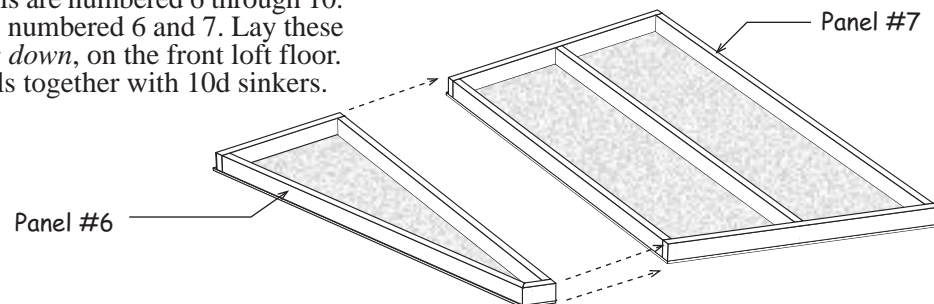
1. Cut 1x4-10' trim boards to length for the front corners. Install trim flush with the bottom edge of the siding and the top of the loft floor. Install the boards flush with the siding on the sidewalls. Use 8d galv. nails to install all trim boards.
2. Cut and install 1x4-8' trim boards between the corner trim.
Important: Install the trim board flush with the floor.
3. Repeat procedure to install trim at the rear of building.



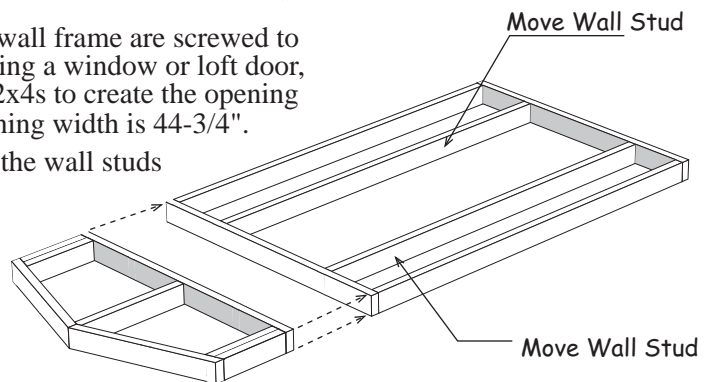
Step 11 Assemble Rear Roof Gable

Assemble Roof Gable on Loft Floor

1. The rear panels are numbered 6 through 10. Locate panels numbered 6 and 7. Lay these panels, *siding down*, on the front loft floor. Nail the panels together with 10d sinkers.



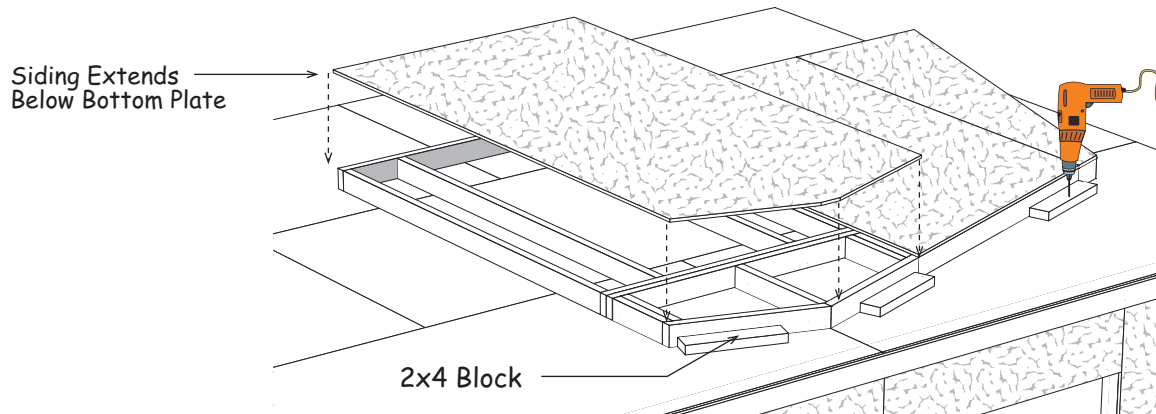
2. The 2x4 wall studs in the bottom wall frame are screwed to the outside 2x4s. If you are installing a window or loft door, remove the screws and move the 2x4s to create the opening width needed. The maximum opening width is 44-3/4".
If no opening is necessary, center the wall studs in the opening.



3. Locate a 47-3/4" wide wall frame and an upper gable frame. The frames are numbered 8A and 8B. Nail these frames together using 10d sinkers.

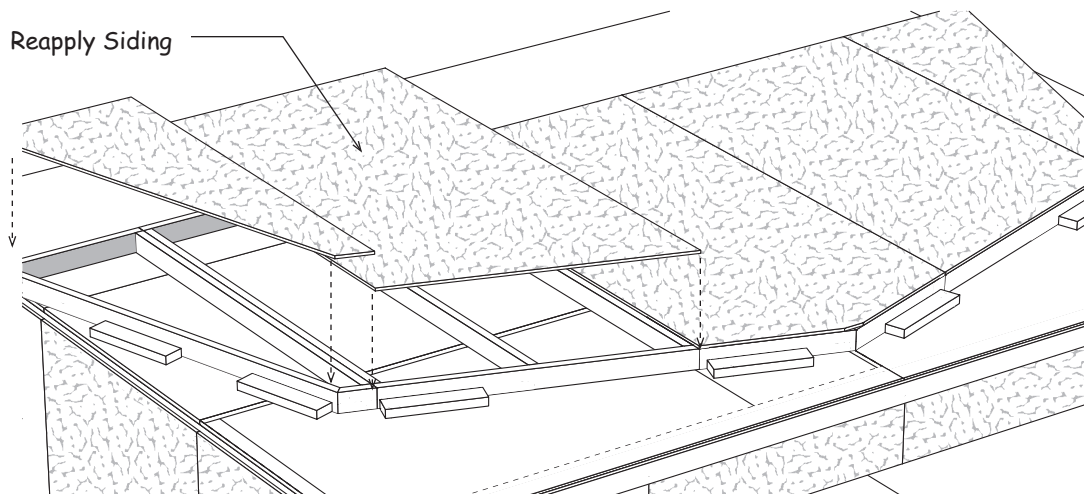
Step 11 Assemble Rear Roof Gable Continued

4. Position gable walls, *numbers 6 and 7*, on the floor with the siding facing up.
5. Install the center wall frame against the panels. Cut a 4x8 siding panel to the shape of the center gable and apply to center wall frame.
6. Fasten 2x4 packing blocks, *to the loft floor*, on the outside of the gable frames. Tack nail blocks or use 2-1/2" screws.



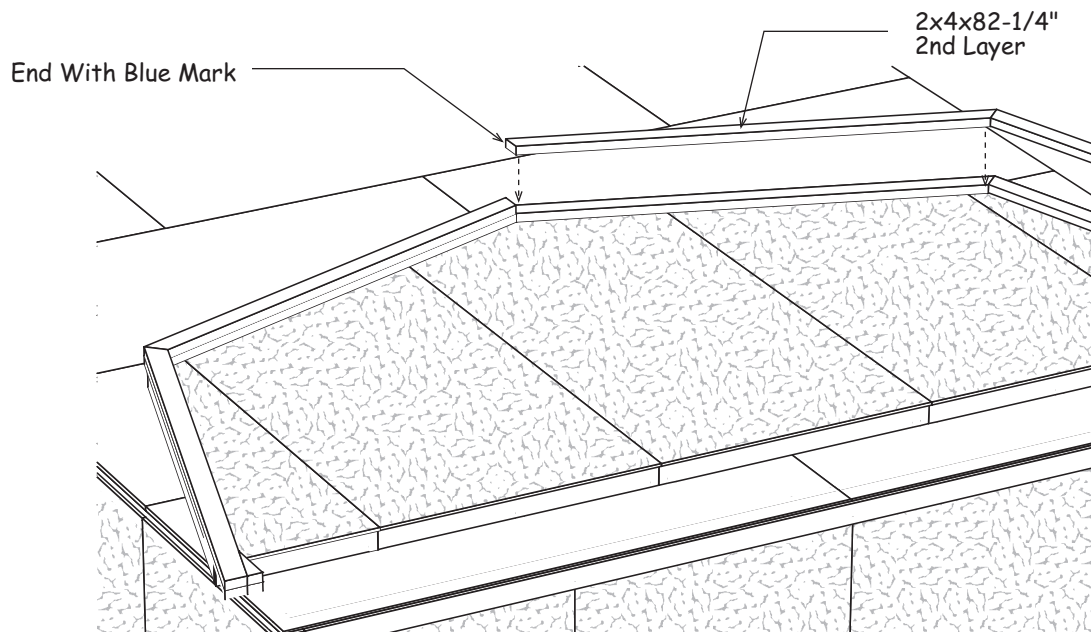
7. Locate gable panels numbered 9 and 10. Remove the siding from these panels. The siding panels are tacked to the walls with a few nails.
8. Install the gable frames numbered 9 and 10 to the center wall panel. Reapply the siding.
9. Fasten more 2x4 packing blocks, to the outside of the gable frames.

Front Wall



Step 12 Install 2x4 Gable Overhangs

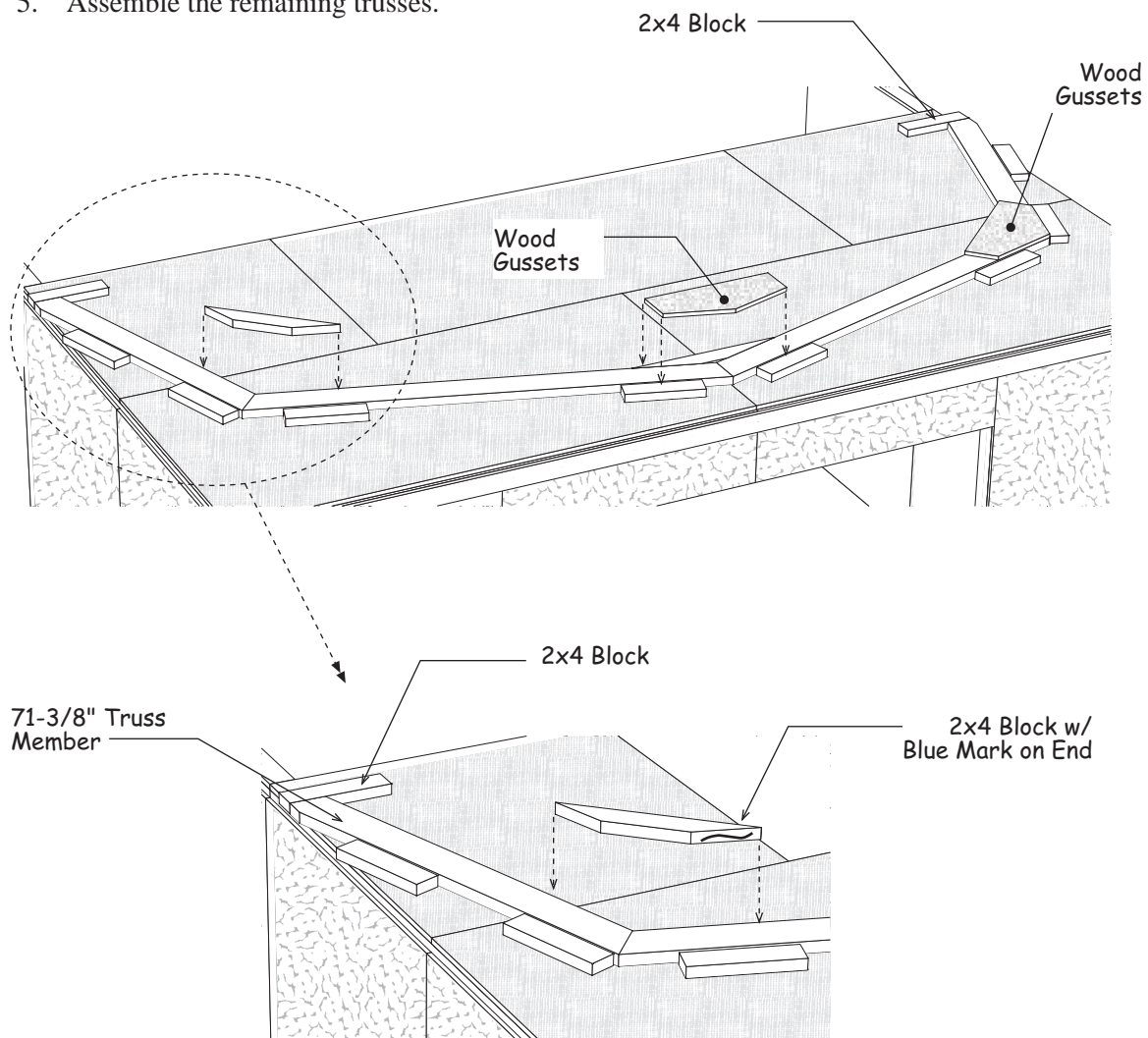
1. Nail the siding where the siding panels overlap. Use 8d galv. nails.
2. Move the gable panel to the back loft area. Install 82-1/4" long 2x4s at the top of the gable. The 2x4s have a blue mark on one end. Install this end at the peak. Install the 2x4s so they extend 1/2" above the gable frame to receive the roof sheathing. Use 10d sinkers.
3. Nail another layer of 2x4s over the first layer to create a 3" deep gable overhang.



4. Locate (4) four 2x4s that are 84-1/2" long and have an angle block attached to one end. Install these 2x4s along the sides of the gable frame, extending 1/2" beyond the gable frame. Use 10d sinkers.
5. You can set this gable now. Refer to **Step 14**.
6. Repeat to assemble the front gable panels. When complete, move the gable frame to the back area of the loft to create room to assemble the roof trusses.

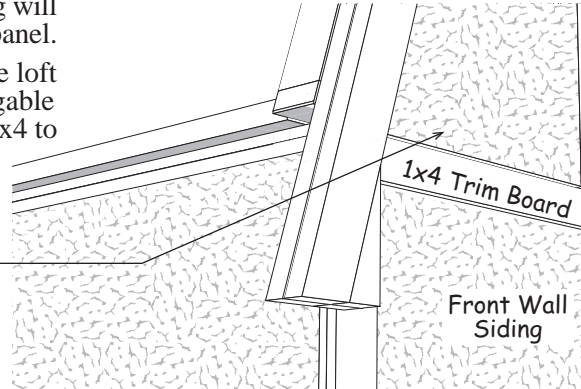
Step 13 Assemble Trusses

1. Lay 2x6 truss parts inside the 2x4 blocks. One end of the 81-3/4" long 2x6 boards have a blue mark. Place these ends together at the ridge. Add a 2x4 block at the bottom of the truss leg to keep this 2x6 from moving.
2. Install a 2x4 block at the ridge and at the knee area of the truss. The 2x4 blocks at the knee have a blue mark on the end. Install this end towards the ridge. Hold blocks in place with 7d sinkers until the gussets are installed.
3. Secure the 2x6 boards together using pre-cut wood gussets. Apply wood glue between the gussets and 2x6s. Secure gussets with (3) three rows of 6d common nails spaced 6" apart.
4. Turn truss over and apply gussets to the other side.
5. Assemble the remaining trusses.



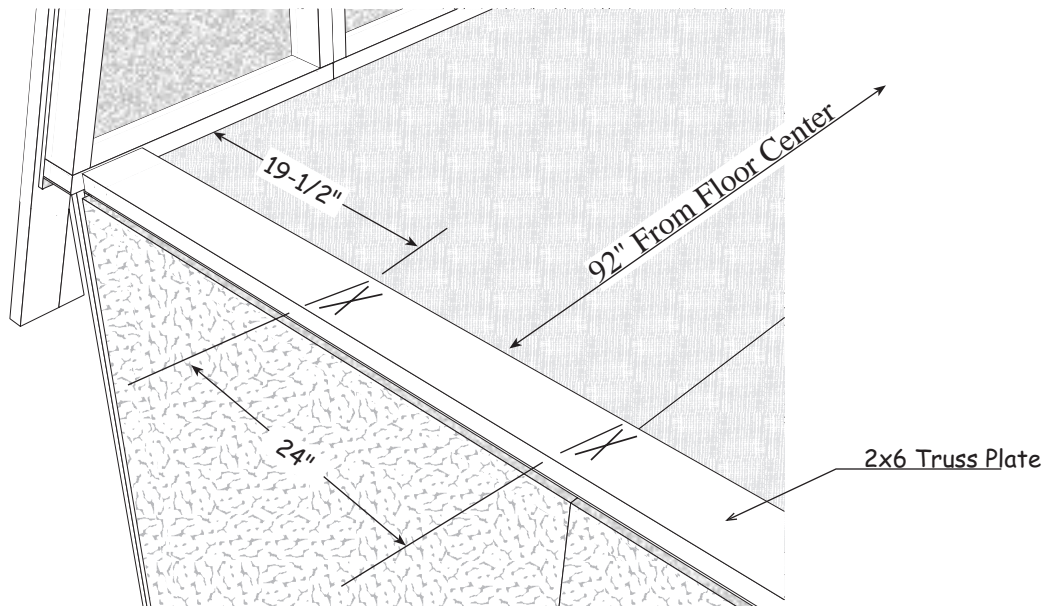
Step 14 Set Gables and 2x6 Truss Plate

1. Install front and rear gables. The gable siding will extend over the 1x4 trim on the lower wall panel. The bottom gable plate should overhang the loft floor the same distance on both ends. Nail gable plate to floor with 16d coated nails. Use a 2x4 to brace gables to floor.

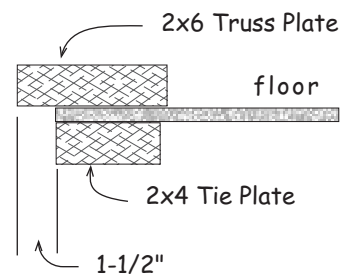


2. Nail bottom edge of siding to 1x4 trim with 6d galv. nails.

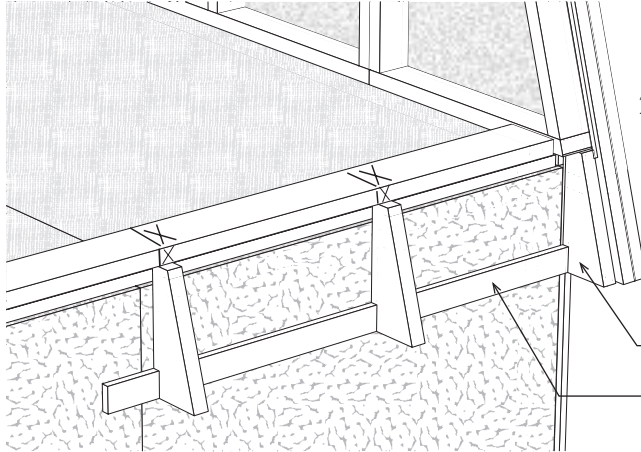
3. Install 2x6 plates 92" from the center of the building. When installed properly the 2x6 will project 1-1/2" past the **2x4 tie plate**. See detail below. Nail to floor with 16d nails.



4. Layout 2x6 plate for trusses. **Important:** Start the truss layout 19-1/2" from the back of the gable plate. Then space trusses 24".
5. Install 2x6 plate on the opposite side.

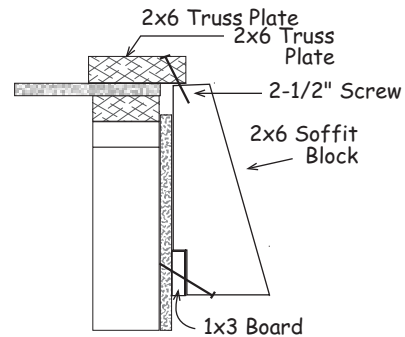


Step 15 Install Soffit Overhang on Sidewalls



1. Extend the lines on the face of the 2x6 to the edge of the 2x6.
2. Install 1x3-8' boards on the sidewall. Use a 2x6 soffit block as a gauge to install the 1x3 at the correct height. Nail the 1x3 boards to each wall stud with one 10d nail. When installed, the soffit blocks must be set directly below the trusses.

Screw A Soffit Block (with siding attached) to Overhang
Nail 1x3 Board to Wall Studs

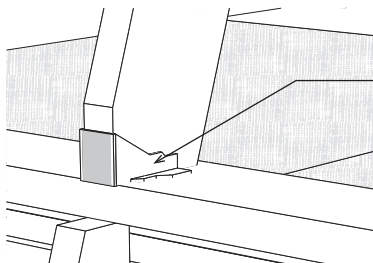


3. Position the 2x6 soffit blocks between the 1x3 board and the 2x6 truss plate. Secure the top of the soffit blocks in place by screwing through the 2x6 truss plate into the soffit block. Secure the bottom by toenailing through the bottom of the 2x6 soffit block into the 1x3 board. Use 7d coated nails. Install the soffit overhang on the opposite side of the building.

Step 16 Set Trusses

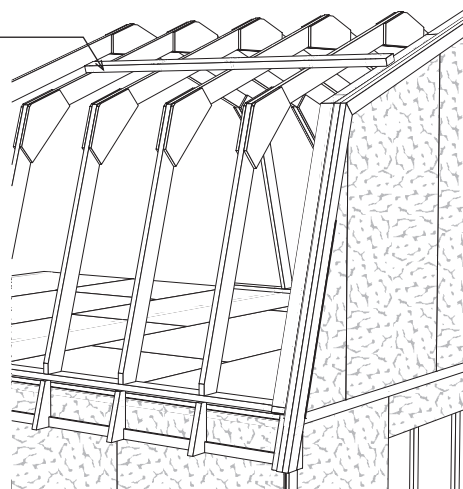
1. Install 2x6 trusses, over the 'X' marks, on the truss plate. Toenail the truss to plate, flush with the outside edge of the 2x6 truss plate. Use 7d sinker. Remove and use lower 2x4 wall bracing to brace the trusses.

2. Secure trusses to 2x6 truss plates with 2x6 metal hangers. Nail metal hanger to truss plate and trusses with hanger nails.



2x4 Metal Hanger

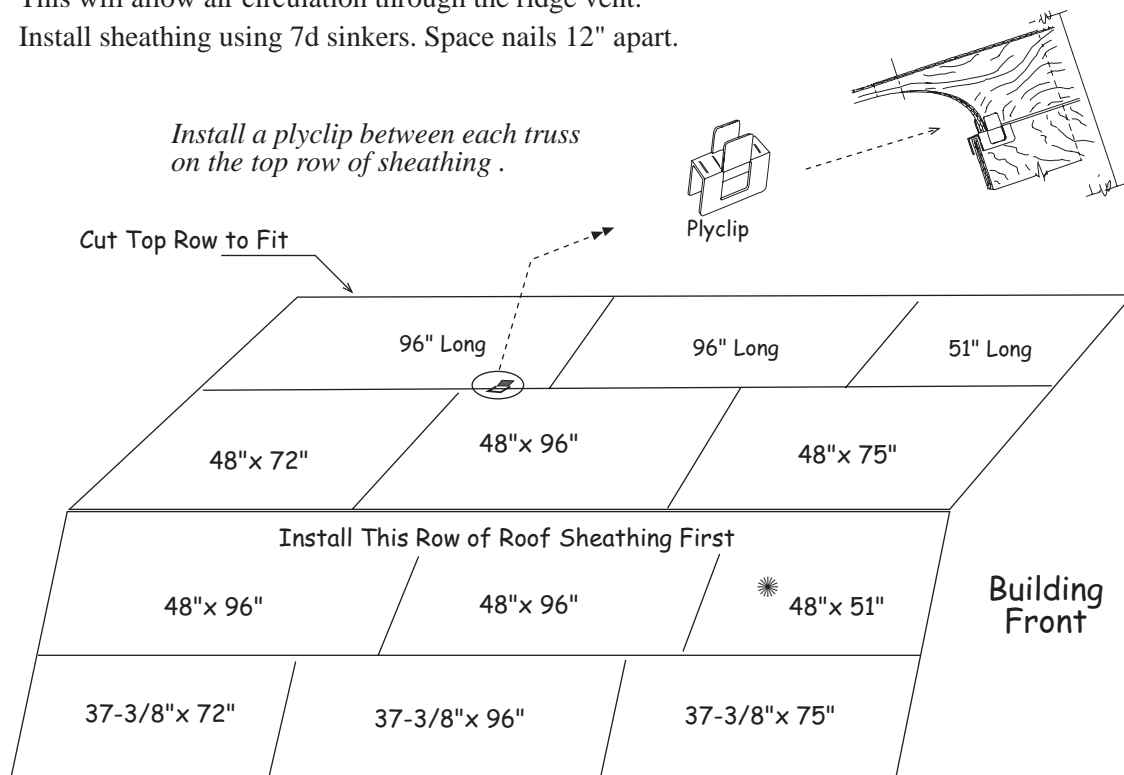
2x4 Bracing



Step 17 Install Roof Sheathing

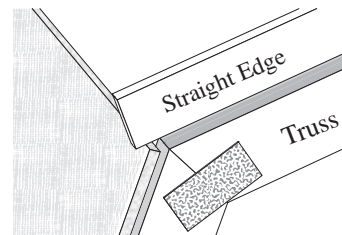
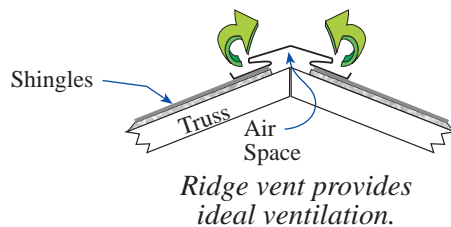
Install 7/16" OSB roof sheathing according to the layout below. Install roof sheathing flush with the 2x4 on the rear gable. Install the lower sheathing first. Use a straight edge to align the top of the sheathing with the top of the truss. See Detail 'B'. If you are installing ridge vent, cut the roof sheathing at the top of the building to be 1" below the peak of the truss. This will allow air circulation through the ridge vent.

Install sheathing using 7d sinkers. Space nails 12" apart.



* Cut Sheathing From Pallet

Building Tip: Ridge vent provides ideal ventilation, preventing heat or moisture from damaging your building or its contents.

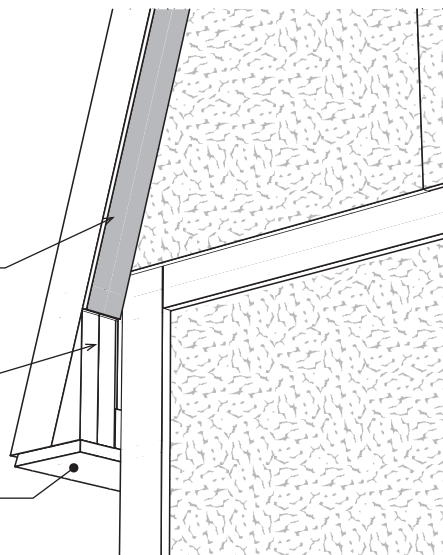


DETAIL 'B'

Step 18 Install 1x6 Eave Soffit

1. Install 1x6 white pine boards under the 2x6 eave overhang. You can install soffit vents for added ventilation.
2. Cut and Install 1x4 corner trim under 1x6 soffit board. Cut to length.
3. Cut 3" wide primed siding panels to length and install under the gable overhang.
4. Cut 3 - 3/8" wide x 10" long primed siding panels to length and install under the gable overhang.

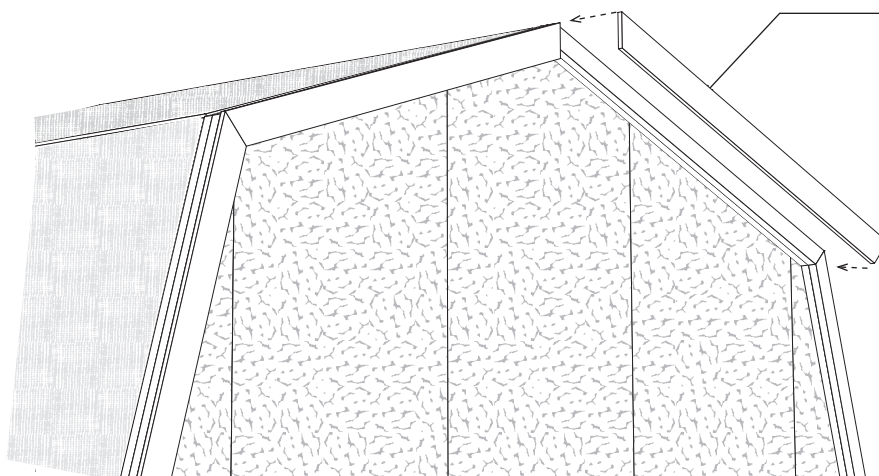
1x6 Soffit Board



Step 19 Install Gable Trim

1. Install 82-1/4" long 1x6 white pine trim boards at the top of the gable overhangs. Install the end with the blue marking at the ridge. Install 1x6 flush with the top of the 2x4s. Use 8d galv. nails.
2. Install 86" long 1x6 white pine trim boards at the sides of the gable overhangs.

1x6 Gable Trim



Packing List

Richmond 16' Wide x 20' Barn Kit

Qty.	<i>Material Shipped by Others</i>		
20	4 x 8	3/8"	LP Exterior Siding
22	4 x 8	7/16"	OSB Sheathing
10	4 x 8	3/4"	OSB Loft Flooring
4	2 x 4	8'	Treated Boards
2	2 x 4	12'	Treated Boards
1	2 x 4	16'	Treated Boards
4	2 x 4	8'	Framing Lumber
4	2 x 4	10'	Framing Lumber
2	2 x 4	12'	Framing Lumber
3	2 x 4	16'	Framing Lumber
72	2x4	92-5/8"	Pre-cut Wall Studs
4	2 x 6	10'	Framing Lumber
2	2 x 8	10'	Door headers
14	2 x 8	10'	Floor Joist
2	2 x 8	16'	Joist Header
2	11-7/8" x 16'		LVL Beams
5	1 x 3	8'	White Pine Trim
10	1 x 4	8'	White Pine Trim
4	1 x 4	10'	White Pine Trim
	<i>Material Shipped by Best Barns</i>		
10	Roof Gable Panels w/ siding applied		
2	7/16"	Roof Sheathing	48" x 90"
8	2x4	82-1/4"	Gable Overhang
8	2x4	84-1/2"	Gable Overhang
18	2x6	81-3/4"	Truss Components
18	2x6	71-3/8"	Truss Components

Qty.	<i>Material Shipped by Best Barns</i>		
18	2x6	10"	Soffit Blocks
4	2x6	10"	Soffit Blocks w/siding
4	1x6	84-1/8"	Gable Trim
4	1x6	73-1/2"	Gable Trim
4	1x6	72"	Beveled Soffit Boards
4	1x6	59"	Beveled Soffit Boards
9	2x4	23"	Truss Blocks
18	2x4	22"	Truss Blocks
18	10" x 24" Truss Gussets - ridge		
36	12" x 24" Truss Gussets - knee		
8	3" x 85"		Primed Soffit Panels
4	3-3/8" x 10"		Primed Soffit Panels
5	lbs.	16d Galv. Deck Nails	
10	lbs.	16d Sinkers	
10	lbs.	8d Galv. - siding & trim nails	
5	lbs.	8d Galv. - sprial loft flooring nails	
5	lbs.	7d Sinkers - roof sheathing	
5	lbs.	6d Common for wood gussets	
5	lbs.	1-1/2" Joist Hanger Nails	
28	pcs.	2x6 Joist Hangers	loft joist
18	pcs.	2x6 Truss Hangers	trusses
2	32 oz Bottles Wood Glue		
24	Plyclips-for roof sheathing		7/16"
35	Wood Screws		2-1/2"
12	5/8" x 3-1/4" x 16" Beam Pocket Fillers		

After completing **Step 18**, install felt paper and metal roof edging perimeter of the roof area. Install shingles according to the instructions on the wrapper. If you need more detailed instructions on installing shingles, there are good publications at book stores or newsstands.

Material Needed 22 bdl. roof shingles, 12 pcs. roof edge and 2 rolls felt paper.